

ADVANCED SCADA

Traditional SCADA Functionality Mixed with High-Speed Phasor Data for Enhanced Insights and Intelligent Control

Cost-effective high-speed intelligent data management, event detection and visualization tool

PXiSE provides an integrated turn-key advanced and intelligent SCADA (data acquisition, monitor, and control). This next generation solution delivers high resolution distributed SCADA functionality improving situational awareness for both retrofits and replacements.

Retrofit legacy SCADA

Enhance legacy SCADA without major upgrades while providing a platform for incremental SCADA modernization. Extends existing SCADA by pitting PXiSE upgrades at remote sites making it easy to manage a portfolio of energy assets.

Retrofit or replace traditional SCADA

Monitor and control 200+ times faster with precision. PXiSE's patented technology is the only one to use time-synchronized phasor data making it the fastest grid control solution:

- Mitigates intermittency and coordination challenges by optimizing the energy mix in real-time
- Never misses a disturbance and supports quick actions
- Desired outcome can be directed at a specific point of interest (Volt/VAR, frequency)
- Less hardware and field integration time combined with remote monitoring and troubleshooting equates to lower cost
- High-resolution/speed data enable new insights for system control operators

PXiSE offers:

- Built-in historian for high resolution input and output data recording
- Real-time high-speed data manager, event detection, alarms, visualization, and high-speed control
- Phasor and integrated displays
- Reports and replays of events
- Enables machine learning and system optimization
- Unparalleled control of both voltage and frequency
- Tailored alerts
- Universal analytics in Asset Framework are applicable to many assets, saving time and improving performance necessary for modern, renewable and DER-based grids

PXiSE ADVANCED SCADA FIELD EXAMPLES:

**GREAT VALLEY SOLAR
200 MW SOLAR FACILITY IN FRESNO COUNTY, CA**

This project is made up of 4 unique sites that tie into a common point of interconnection (POI). The SCADA for the site consists of PLCs and an HMI. It controls eighty-two (82) 2500kW inverters. The project consists of 4 independent solar sites with 4 sets of SCADA.

Opportunity:

Trying to control voltage at the POI requires a unique understanding of voltage interaction among the four sites; without a good understanding, the site risked circular Var flow from site to site and would not affect the POI as desired.

Solution:

PXiSE was deployed as a solar advanced-SCADA platform. This includes an embedded OEM version of the OSISoft PI data platform, provides over 400

protocols and is able to connect to multiple devices and interfaces. It also comes with an alarm system that monitors necessary change of conditions (i.e., whenever an alarm changes state whether by an operator or by process, it is logged and categorized for historical review).

The PXiSE advanced-SCADA platform allows real-time feedback control of tasks like power and voltage control, power and VAR control, and/or power and power factor (pf) with relative ease. An extensive field tuning that may be expected if using traditional technology, as in the case of voltage droop, is not needed with PXiSE. The advanced feedback control is more precise under many operating configurations according to the status of asset conditions in the 4 sites. Using the PXiSE technology will reduce the ringing of Var throughout the system and allow us to deliver a higher performing project.

**COPPER MOUNTAIN SOLAR 1
58 MW SOLAR FACILITY OUTSIDE OF BOULDER CITY, NV**

The SCADA for the site consists of PLCs and an HMI. It controls 116 500kW inverters. Of the total, 96 are controllable and required to follow curtailment commands.

Opportunity:

Due to SCADA and inverter limitations, 20 of the 116 inverters are not controlled. Whenever a reliability curtailment is required, site personnel needs to shut down each inverter manually.

Solution:

PXiSE was deployed as a solar advanced-SCADA platform. This includes an embedded OEM version

of the OSISoft PI data platform, multiple devices and interfaces. It also comes with an alarm system that monitors change of conditions.

The system can also seamlessly add and control a BESS system and all its associated functions, giving the owner the added flexibility.

In both cases, the primary duties of the system are power and voltage control. All data is stored in the OSISoft PI historian. Connection to the corporate back end is made simple via the PI to PI transfer protocol Asset Framework (AF).

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